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STITES & HARBISON PLLC 1199 NORTH FAIRFAX STREET SUITE 900 ALEXANDRIA, VA 22314			EXAMINER	
			KARPINSKI, LUKE E	
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/536,736	<b>Applicant(s)</b> DUBERTRET ET AL.
	<b>Examiner</b> LUKE E. KARPINSKI	<b>Art Unit</b> 1616

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
  - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
  - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED. (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on 01 July 2008.
- 2a) This action is FINAL.      2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 1-17 and 19-25 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_\_ is/are allowed.
- 6) Claim(s) 1-17 and 19-25 is/are rejected.
- 7) Claim(s) \_\_\_\_\_ is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) All    b) Some \* c) None of:  
 1. Certified copies of the priority documents have been received.  
 2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- 1) Notice of References Cited (PTO-892)  
 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)  
 3) Information Disclosure Statement(s) (PTO-146/08)  
 Paper No(s)/Mail Date \_\_\_\_\_
- 4) Interview Summary (PTO-413)  
 Paper No(s)/Mail Date \_\_\_\_\_
- 5) Notice of Informal Patent Application  
 6) Other: \_\_\_\_\_

**DETAILED ACTION**

Receipt of amendments, arguments, and remarks filed 7/01/2008 is acknowledged.

***Claims***

Claim 18 has been canceled.

Claims 1-17 and 19-25 are currently pending and under consideration.

***Rejections***

Rejections and/or objections not reiterated from previous office actions are hereby withdrawn. The following rejections and/or objections are either reiterated or newly applied. They constitute the complete set presently being applied to the instant application.

***Previous Rejections***

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

**Claims 1-6 and 22-25 are rejected under 35 U.S.C. 102(b)** as being anticipated by US Patent No. 5,417,961 to Nearn et al.

Nearn et al. disclose a cosmetic composition comprising: zinc oxide, a continuous hydrophobic phase and, a continuous hydrophilic phase within a cosmetic vehicle, wherein the cosmetic vehicle is a w/o emulsion, wherein the zinc oxide is dispensed in the hydrophobic phase of the cosmetic vehicle (abstract), and wherein the composition is characterized in that it is a cream (col. 2, lines 25-27).

The instant application claims a make-up composition and Nearn et al. claim a sunscreen composition; these compositions are seen to read on each other because both compositions comprise the same components and are both cosmetic compositions, therefore there is seen to be no difference between the two compositions. The fluorescent semiconductor nanoparticle taught by Nearn et al is ZnO (zinc oxide), as disclosed in claim 15 of the instant application. The aqueous phase reads on a hydrophilic phase and the organic phase reads on a hydrophobic phase.

Regarding claims 22-24 the different characterizations of the composition is seen as intended uses without any specific components to structurally define the claims. The intended use of said composition is given weight only if said use results in a structural difference between the claimed invention and the prior art. The intended use recited by the Applicant imparts no such difference and therefore is given no patentable weight.

Concerning claim 25 and the method of preparing a composition according to claim 1, Nearn et al. disclose the nanoparticles being introduced into an oil phase and as aqueous phase (col.2, lines 24-31).

***Response to Arguments***

Applicant's arguments filed 7/01/2008 have been fully considered but they are not persuasive.

Applicant argues that Nearn et al. does not disclose nor make a single reference to quantum dots.

This argument is not found persuasive because crystalline zinc oxide particles are known as quantum dots, as evidenced by US Patent Publication No. 2003/0066998 to Lee (abstract, [29], [38-40], and [75-77]). Lee teaches that quantum dots cores may comprise of ZnO and that a shell surrounding said core is optional, therefore Lee teaches that ZnO on its own is considered a quantum dot.

The arguments and remarks regarding the Bawendi reference are moot in view of new grounds of rejection.

***New Rejections***

***Claim Objections***

Claims 8 and 9 are objected to because of the following informalities: There seems to be a typographical error in reciting which groups the semiconductor may come from, (e.g. group 11-VI and group I11-V). Appropriate correction is required.

***Claim Rejections - 35 USC § 102***

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application

by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

**1. Claims 1, 6-9, 13-15, and 22-25 are rejected under 35 U.S.C. 102(e) as being anticipated by US Patent Publication No. 2002/0127224 to Chen.**

Chen discloses topical compositions comprising quantum dots (abstract and [0054]), as claimed in claim 1.

Chen further disclose said dots are capable of being dispersed in either a hydrophobic or hydrophilic phase [54-57 and 73], as claimed in claims 6 and 7, ZnSe and GaN [35], as claimed in claims 8 and 9, a core shell structure having CdS as said core and ZnS as said shell [35], as claimed in claims 13-15, and the step of adding said quantum dots to a cosmetic vehicle [73].

Regarding claims 22-24 the different characterizations of the composition is seen as intended uses without any specific components to structurally define the claims. The intended use of said composition is given weight only if said use results in a structural difference between the claimed invention and the prior art. The intended use recited by the Applicant imparts no such difference and therefore is given no patentable weight.

The instant application claims a make-up composition and Chen claims topical creams, ointments, and gels, which read on cosmetics and make-up; these compositions are seen to read on each other because both compositions comprise the same components and are both cosmetic compositions, therefore there is seen to be no difference between the two compositions. Further, said dots are claimed as pigments and it is common in the cosmetic art to utilize pigments in almost every cosmetic product currently on the market, said dots taught in one cosmetic would render obvious said dots in any other cosmetic product for utilization as a pigment.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Applicant Claims
2. Determining the scope and contents of the prior art.
3. Ascertaining the differences between the prior art and the claims at issue, and resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

**2. Claims 2-5 are rejected under 35 U.S.C. 103(a)** as being unpatentable over US Patent Publication No. 2002/0127224 to Chen.

***Applicant Claims***

Applicant claims the compositions of claim 1, further comprising said cosmetic vehicle with a continuous hydrophobic phase, hydrophilic phase and as an emulsion.

***Determination of the Scope and Content of the Prior Art (MPEP §2141.01)***

The disclosure of Chen is delineated above, in particular Chen teaches said dots in emulsions, creams, and ointments [72-73] and that said dots can be modified to be soluble in either polar or non-polar solvents [0057].

***Ascertainment of the differences between the prior art and the claims***

**(MPEP 2141.01)**

Chen does not explicitly teach an example wherein the claimed dots are dispersed within either a hydrophobic or hydrophilic phase of said cosmetic vehicle. However, Chen does teach that the surface of said dots may be modified to be soluble in different solvents as well as said dots within emulsions, creams, and ointments for topical application. It is well known in the cosmetic art that many creams are some form of oil and water emulsion and it would have been obvious to one of ordinary skill in the art that if said dots were capable of being dispersed in a creams, oils, and ointments, and could be modified to be soluble in different vehicles, that said dots could be modified to be soluble in either the hydrophobic or hydrophilic phase of an oil and water emulsion.

***Finding of prima facie Obviousness Rational and Motivation***

**(MPEP 2142-2143)**

It would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to modify the surface of said dots and disperse them into either the hydrophobic or hydrophilic phase of and oil and water emulsion as instantly claimed because Chen suggests that said dots may be incorporated into such vehicles and such phases. In a prior art reference it is not necessary for all of the possible compositions to be exemplified in order for the art to render an invention obvious.

From the teachings of the reference, it is apparent that one of ordinary skill in the art would have had a reasonable expectation of success in producing the claimed

invention. Therefore, the invention as a whole would have been *prima facie* obvious to one of ordinary skill in the art at the time the invention was made, as evidenced by the references, especially in the absence of evidence to the contrary.

**3. Claims 10-12, 16, 17, and 19-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent Publication No. 2002/0127224 to Chen in view of US Patent No. 6,319,426 to Bawendi et al.**

***Applicant Claims***

Applicant claims the compositions of claim 1 further comprising specific elements for said core and said shell components, a thickness for said shell, said dots complexed into micelles, and specific compounds for the hydrophobic and hydrophilic groups of the coating elements.

***Determination of the Scope and Content of the Prior Art (MPEP §2141.01)***

The teachings of Chen and Bawendi et al. are delineated above and incorporated herein. In particular Chen teaches core/shell structures for said dots and different elements for each layer, and encapsulating said dots for delivery purposes [70]

***Ascertainment of the Difference between Scope the Prior Art and the Claims (MPEP §2141.012)***

Chen does not teach semiconductors of the elements of claims 10-12 as claimed. This deficiency in Chen is cured by Bawendi et al. Bawendi et al. teach semiconductors of Ge (col. 11, lines 56-65) and a mixture of CdSe and CdS (col. 12, lines 33-39).

Further, Chen does not teach a shell thickness as claimed in claim 16. This deficiency is cured by Bawendi et al. Bawendi et al. teach a core/shell structure and a shell layer thickness (col. 12, lines 15-16 and 49-50).

Further, Chen does not teach the micelle structures of claim 17 or the specific hydrophobic or hydrophilic moieties of claims 19-21. This deficiency is cured by Bawendi et al. Bawendi et al. teach fluorescent nanoparticles coated with a hydrophobic ligand and complexed into a micelle, the micelle being formed from a plurality of hydrophobic groups (hydrophobic core) and a plurality of hydrophilic groups (hydrophilic envelope), wherein each hydrophobic group contains at least one chain (figure 1). Bawendi et al. also teach that the hydrophobic chains comprise at least 8 carbon atoms (col. 14, lines 53-56) and the number of carbon atoms for all of the hydrophobic chains of a single group being greater than 24 (figure 1).

Regarding claims 19-21 and the limitations of specific hydrophilic groups, Bawendi et al. teach the hydrophilic molecule as a sugar block copolymer and as polyethylene glycol (col. 6, lines 7-44). Bawendi et al. state that "sugar" includes polysaccharides (col. 9, line 64 to col. 10, line 16).

**(MPEP §2142-2143)**

Regarding claims 10-12, 16, 17, and 19-21, it would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to produce the formulations of Chen with the quantum dots structures as taught by Bawendi et al. in order to produce the invention of instant claims 10-12, 16, 17, and 19-21.

One of ordinary skill in the art would have been motivated to do this because Chen teaches many varieties of coated and uncoated quantum dots formulated into topical creams as well as the fact the even less biocompatible materials may be utilized with the proper coatings and Bawendi et al. teach many different varieties of quantum dots which can be coated and are capable of being formulated to be soluble in either hydrophobic or hydrophilic solvents. Therefore it would have been obvious to utilize any of the quantum dots of Bawendi et al, with the formulations of Chen in order to impart color onto cosmetic products..

From the teachings of the reference, it is apparent that one of ordinary skill in the art would have had a reasonable expectation of success in producing the claimed invention. Therefore, the invention as a whole would have been *prima facie* obvious to one of ordinary skill in the art at the time the invention was made, as evidenced by the references, especially in the absence of evidence to the contrary.

***Conclusion***

Claims 1-17 and 19-25 are rejected.

No claims are allowed.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

***Inquiries***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to LUKE E. KARPINSKI whose telephone number is (571)270-3501. The examiner can normally be reached on Monday Friday 9-5 est.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Johann R. Richter can be reached on 571-272-0646. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

LEK

/Mina Haghigian/  
Primary Examiner, Art Unit 1616

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